Grain



DECEMBER

1939

Is It Interesting?

Most people do not spend time thinking about advertising. They don't need to. Advertising is a service which everyone uses without having to ask for it. Often we are not even aware of its guidance in our daily purchases. And when it comes to the broader services of advertising in promoting economic and social progress — that seems too remote for most of us to worry about.

Yet this is one of the most interesting, one of the most fascinating developments of modern business. The story of advertising is more dramatic than the romance of railroads. The invention of the locomotive and the stretching of shining steel rails in an intricate network over this vast continent made possible the swift transport of commerce to every point of potential business in the land. The creation of advertising and the development of advertising mediums made possible the prompt distribution of the output of rapidly expanding industry.

Interesting AND True

Today, our industrial giant can produce cheaply a multitude of desirable products unknown a few years ago. Our marvelous transportation system can haul them quickly to every person in the land. To make full use of all these factories and railroads, we must have a liberal amount of good advertising. It has become a necessary part of business.

Nowadays, everybody is studying economics. People talk about purchasing power, the volume of production, and the status of gold.

The public is interested in these matters because of their influence on employment. For the same reason, it is important to think about those business forces which stimulate trade and make the dollar go 'round. One of these is advertising. Every business which increases its own sales through advertising is doing its part to put idle purchasing power into circulation and idle men to work.

We All Have a Stake

Advertising is primarily intended as a service of information for the consumer. It gives news about new products and improvements in old products. It tells how to obtain greater use and more satisfaction from the things we buy. It shows the way to better hygiene, better food, and better use of leisure time.

It helps the housewife to save time and money in her shopping. It points the way for her Super husband to make every penny count in Elevator expenditures. Besides providing this information service advertising makes possible our free radio programs and low priced newspapers and magazines (see GRAIN!)

These are the obvious ways in which advertising makes itself a useful aid in our everyday lives. The more dramatic part which advertising plays in the development of industry and civilization is simply the total of many days' useful work. By helping to build new industries and promoting higher standards of much to our progress and well being. It has provided an economical means for that mass distribution so essential to modern mass production, which in turn brings greater income and better living for everyone.

Good advertising is not only an asset to business; it is essential to all of us as consumers. We all have a stake in the effective and intelligent use of this great business force.



Editorial

By SANDY KEIR

GUARD YOUR PICTURE

Did you ever glance at some old familiar object and suddenly see something entirely different? Things like that do happen, you know. There was the case of the businessman who had been accustomed to relax ten minutes each afternoon in his office by staring motionless out of the window. Through the years the scene beyond had become a pattern as changeless as the tides. It was a far flung panorama of sprawling wharves and puffing tugs and riding ocean steamers. Day after day the picture was there, and the man sat and gazed his allotted ten minutes.

But one day something happened. The picture had changed. At first the man felt slightly bewildered, not understanding what was wrong. Then it dawned upon him that the old familiar scene had become something quite different from the majestic liners, the busy tugboats and the jutting wharves. The picture had become a dull, hazy grayness in which all detail had vanished.

For a long, still moment the man sat there, struggling against the fearful knowledge beating at his brain. Then he gave a shuddering gasp and slowly turned from the window. He knew . . . he knew beyond doubt that he was going blind, and that his picture was forever gone.

The scene had changed for the businessman and the scene can easily change for all of us. A simple violation of the laws of Safety can wipe out a beautiful panorama for any one of us. The dear familiar objects we see each day of our lives can be swept into oblivion by a single stroke of mischance. Our only protection against an upheaval in the order of our lives is a constant vigilance in the practice of Safety regulations. Only thus can we guard our pictures.

GRAIN

BOARD OF TRADE BUILDING
CHICAGO, ILLINOIS
TELEPHONE WABash 3111-2

A forum for OPERATIVE and MECHANICAL PROBLEMS in TERMINAL ELEVATORS

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KANSAS CITY, MISSOURI

CORN

THAT "LADY BOUNTIFUL" INDUSTRIAL RAW MATERIAL

By NORMAN F. KENNEDY, Director of Research
Corn Industries Research Foundation

IF YOU soak a kernel of corn until it is soft and then cut it open with a razor blade, you will find an oily embryo, or germ, almost completely surrounded with clean, white starch.

On the top and sides there are bulges of horny starch, which is harder and darker in color because it contains a certain amount of gluten. Around the whole kernel is the fibrous hull.

The important part of the corn kernel, however, is — and always has been — its starch, regardless of whether you are going to use the grain for flour, fodder or an industrial raw material.

I intend to outline, briefly, the progress that has ben made in applying corn to industrial uses and the continued progress which we may expect in the immediate future.

My purpose is not to try to impress anybody with the wonders of science — anybody with a single kernel of corn and enough soil to plant it in can produce a more impressive and more important, miracle than the best of laboratories. But it seems to me that as the years move on, men become more inclined to feel that their own work is strongly influenced by what is going on in the next county, the next state and only too often in countries across the seas.

Agriculture and Industry

For a long time, we have known that a drought, a tornado or a bad farm mortgage situation may throw city people out of employment, may cripple some far away industry or affect the investments of a helpless widow two thousand miles distant. We have known that prosperity on the farm brings prosperity to the workers in factories and the apartment dwellers in the city.

We are now being told that the influence is mutual — that an industrial chemist with an inquisitive turn of mind in Philadelphia may start a train of scientific investigation that will add three cents to the price of soy beans in Nebraska.

This realization of the part we all play in the lives of our neighbors appears to have fostered a willingness — sometimes an eagerness — to listen to the other man's story and to learn what we can of his work in the hope that a mutual understanding will weld a better and stronger nation.

It is the business of the corn refining industry to recover and use the starch from corn, modifying it for different uses and developing as many derivatives as possible. The oil, fibre, gluten and mineral salts are recovered at the same time as a matter of course and of good business sense, but starch is the heart of the industry as I shall try to make clear to you in a moment.

I want, at this point, to call to your attention the fact that this industry is one of the earliest examples of farm chemurgy and of the principles which the Farm Chemurgic Council is now so ably carrying to every corner of the land.

Corn Refining Is a Mature Industry

We have been turning an agricultural product to industrial uses for more than three-quarters of a century — about seventy-five years if you count roughly from the beginning of heavy production, or actually ninety-six years if you begin with the basic patent that first revealed a practical method for recovering starch granules on a commercial scale.

This was the Orlando Jones patent, granted in 1841 when John Tyler — "Tippicanoe and Tyler Too" — had just taken the oath of office as tenth president of the then twenty-six United States. The Mexican War was yet to be fought, Texas was an independent republic, steel had not been invented, and Missouri was about to raise the question of who was President between the expiration of one executive's term at midnight on March third, and the taking of the inaugural oath by the new president at noon the next day.

The Jones patent covered any starch from any source, but it was quickly applied to corn and may be regarded as the basic patent for the industry which today uses upward of seventy million bushels of corn yearly in the production of starches, syrups, sugars and a number of interesting by-products.

In the early years, starch was the only product. The production of syrup began to develop independently along in the eighteen eighties. Because the syrup is a derivative of starch and necessitated the recovery of starch from corn before it could be converted into syrup, it was only natural that the syrup business and the starch business should come together as complementary activities.

By nineteen six all processors, regardless of whether they made starch or syrup, or both, were recognizable as belonging to a single industry, with a total consumption, in that year, of about thirty-six million bushels of corn.

Corn Is Used Industrially Because of Its Starch

I should like, now, to go back to the corn kernel, and look at it from another point of view. The chemist is less interested in its appearance than in its composition. He grinds the whole thing into a mash, puts it through his test tubes and retorts, separates its components and measures each one carefully.

Apart from the water in the kernel, he finds that fully eighty percent — four-fifths of it — is starch. One-tenth is protein, four and a half percent is oil or fat, three and a half percent is fibre and the remaining two percent is made up of mineral constituents which the chemist calls ash.

One glance at the chemist's analysis should be enough to tell anybody that the industrial utilization of corn has to be based upon the markets for starch and starch products. Valuable as they are, the percentages show you that the by-products are simply by-products, incapable of justifying extraction for themselves alone. It becomes obvious that corn has no particular industrial merit, apart from its starch. Its present widespread technical use is due solely to the providence of nature in endowing the grain with a plentiful supply of starch.

I think it is important, if not essential, that we put our finger in this way upon the starch in corn as the reason for the processing of the grain by industry. This is the first step — and a step too often overlooked — in any sound understanding of the corn refining industry. Its success and its economics must be bound up in what can be done with starch and with products derived from starch.

The by-products are not being neglected by any means. We are constantly at work on their development and applications, but their markets can be built up and satisfied only on condition that we maintain or extend the markets for the primary chemical ingredient in our raw material — its starch.

With this background, we may look at the present uses of starch and starch products and perhaps glimpse some clue to the possibilities of early expansion.

Kinds of Starch

Starch is described in reference works as a white, amorphous substance which is practically odorless and has a slightly sweet taste. We are familiar with it mainly in the form of edible cornstarch and the irregular lumps called laundry starch.

This is a small part of the story. In the long history of the industry, one modification after another has been made so that we have pearl starch, powdered starch, soluble starch, thick boiling and thin boiling starches, alkaline starch and oxidized starch, crystal, non-congealing, gelatinized, binder, boraxed and several others, each with its own special characteristics to fit some special industrial need.

The growth of starch consumption has not been highly spectacular. The history of the industry shows that it was born into a world of very limited markets so far as its own products were concerned. There was no particular demand for the products and it would have been impossible for the country in the early days to absorb anything like the present volume of starch and starch products. The industry grew up side by side with other industries. There is no doubt that the potential uses of our products were held back in many cases by the slow development of markets big enough to take heavy quantities.

At the present time, there is less need to await any further expansion of industry as a whole. We feel, and research has proved it over and over again, that there are sizable, lucrative markets to be had for the taking if we can fit our products to them.

The existing outlets for approximately eight hundred million pounds of the various types of corn starches have been developed in two ways; first, by showing how one of our products can be used to good advantage in processes where its characteristics were not well known, and secondly, by getting acquainted with the problems of another industry and then deliberately designing a product to fit some special need.

Uses of Starch

It is in these two ways that the long list of various starches has grown. We haven't the time, and I have no right to try your patience with all the uses of the types of starches I have named. It is enough to name the five most important industrial users. These are the cotton textile industry, the paper industry, laundries, the chemical industries and the adhesives manufacturers. Their products are so diversified that you are in intimate physical contact, twenty-four hours a day, with evidence of the successful industrial applications of products derived from corn. The clothes you wear, the furnishings of your home, the twine, paper and burlap of the merchant, the desk you sit at in the city, the explosives you use for blasting in the country—these and many, many more items have been touched by the chemurgy that has made an industrial tool of corn.

I have said that corn refining is fundamentally a starch industry and I want now to take you across the chemical boundary line that marks the transformation of starch into other substances and opens up wide new fields apart from the strictly starch markets.

The chemist and the physician for a long time have known that starches, sugars and syrups are very closely akin to each other. Nutritionally, it makes little difference whether you eat a starch, a syrup or a sugar. They follow the same course and serve the same purpose of providing you with physical energy. Chemically, the syrup and sugar are obtained from starch, and the sugar in a fruit is first manufactured in the leaf in the form of starch.

Similarly, we use starch as the starting point for the manufacture of several syrups and sugars, some of which are particularly promising prospects for greatly increased use in the near future.

You are all familiar with the syrups in the form in which they reach your table, and I only need to point out the four main industrial applications which you may not know. These are in textile manufacture, in the preparation of certain special types of paper, in the tobacco industry and in the tanning of leather.

Dextrose

The sugars are adaptable to a more extensive and certainly a more spectacular list of uses.

For example, dextrose is the same sugar that occurs in your blood and tissues. Consequently, it commands the attention of the biological chemist and other medical scientists who have found more uses for it than I should care to go into. As an illustration of the unusual nature of this product, however, I might repeat the interesting testimony of a well-known physician in a recent legal case that touched upon treatment of recovery from physical shock.

"The individual," this doctor said, "comes into the hospital or you visit his home and he is in a coma and literally dying, and when you give him a ten percent injection of dextrose, he gets out of bed in ten minutes, perfectly well. It is the most miraculous thing I know about."

The word "miraculous" of course referred to the effects of this particular treatment and not to the product, although I think you will agree that a product with properties thus vividly described shows that the industrial use of agricultural goods does not stop with starches and automobile lacquers and power alcohol. The chemurgic movement has a wide horizon and nobody yet knows what the final potentialities are.

The so-called "raw" dextrose products, containing from eighty-eight to about ninety-three percent of dextrose, are used in the manufacture of fibre silk, in brewing, tanning and in the fermentation industries.

The white, hydrate refined dextrose, although it finds most of its applications in the food field is nevertheless a fine product for some strictly industrial uses and should sooner or later find a number of new markets.

465 to 3

Read these **RESULTS** of TWO TYPICAL GRAIN FUMIGATIONS using Larvacide

CHLORPICRIN

SOFT wheat, in concrete bins. Job done with simple application of 2 lbs. of LARVACIDE per 1,000 bushels, plus a little extra top and bottom. Treatment as described in detail in LARVACIDE Literature — FREE on request.

Insect Count prior to Treatment:

(2-quart samples taken from belt by handfuls every few minutes)

Sample No.	Live Count	Sample No.	Live Count*
1	2	1	100
2	3	2	50
3	0	3	75
4	1	4	150
5	4	5	22
6	6		
7	0		
8	50*		

* Necessarily approximate

Insect Count at time of Pulling (2-quart samples taken from belt by handfuls every few minutes): 28 samples drawn — No live insects found; 8 samples drawn — No live insects found

Incubation Results on above Samples:

	Date	Live Count in 28 Samples	Date	Live Count In 8 Samples
drawn	Nov. 17	0	Nov. 27	0
drawn	Nov. 27	0	Dec. 11	0
at time of pulling	Dec. 11	1	Dec. 26	4
(incubating temperature—80°)	Dec. 26	0	Jan. 8	0
	Jan. 8	0	Jan. 22	0

Note the weevily condition of these bins, prior to fumigation, particularly in Case 2. This treatment justified the small expense incurred many times over by bringing insect damage to an abrupt halt, and saving the cost of several turns to reduce the temperature below the point where insects are active.

Results as secured above are your best evidence of a THOROUGH job. These emergence tests indicate a kill of egg life which means that repeated fumigations are unnecessary.

For MOTH — Sprinkle or spray surfaces of standing grain according to instructions. TREAT BIN BOTTOMS — In running grain into bins suspected of infestation, sprinkle up to a quart into bin bottom with first few bushels.

★

For RODENTS — Light applications as directed. Rats and mice die in the open. No carcass nuisance. Traces of gas, lingering in burrows and similar retreats, guard against reinfestation for a long, long time. Write for new folder on Effective, Economical Grain Fumigation, pictured at right. It's FREE, of course.



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One starch derivative which I have not yet mentioned is dextrin. This is best described as a roasted starch used in making adhesives and in the treatment of textiles, cordage and paper. In many cases, its use parallels or supplements the use of starch.

These are the main products of the industry: starches, syrups, dextrose and dextrin. The by-products include corn oil, feeds, hydrol, or the molasses resulting from the sugar processes, and a number of minor items.

In the interests of leaving no stone unturned in the search for ways to expand the industry and increase its consumption of raw material, the main products, the byproducts and every step in the processes are the subject of constant study. The industry is now employing at least two hundred qualified chemists, many of whom are engaged chiefly in research. In addition, the laboratories of several leading universities are working on promising problems.

Cooperative Research

The industry has recognized the value of outside cooperation with the laboratories which serve other industries. As an example of the fruit that inter-industrial cooperation of this nature may bear, I should like to point to a project recently undertaken, by joint agreement, with the meat packing industry.

This particular work is under the direction of Dr. W. Lee Lewis. The thought behind it was that there might be a place for dextrose or corn syrup in the curing of meats. Nobody knew exactly what might develop; indeed, there was no assurance that anything of any value whatever would result. In the course of early experiments, however, it became apparent that dextrose had a great deal to do with the color of the cured product. Without going into the technicalities of the matter, I may say that this project has advanced to the stage where the beneficial effects of dextrose in the curing of certain meat products can no longer be questioned and that a new use of major proportions has been opened to this product of corn by scientific investigation of a single possibility.

The implications, I think, are clear. The utilization of corn will be increased, potentially, by as much as several million bushels within a few years; the way is open for the improvement of several important meat products — hence for an increase in their salability; and the industrial utilization of corn, an agricultural product, has thus been put to work to help the utilization of another agricultural product, meat, to the mutual advantage of each.

I doubt if there can be a finer example of the benefits of the chemurgic principle and I doubt if there are many other recent developments so deserving of your attention, for this is not a promise or a theory: it is a freshly accomplished contribution to progress, already established and now in the early stages of practical application.

I should like to mention one other recent accomplishment of importance; the development of a new type of anhydrous dextrose of unusual purity. The use of



the ordinary hydrate dextrose in meats is an example of the fitting of an existing product to a new use, the production of the high purity anhydrous dextrose is an example of the development of a new product. This new anhydrous dextrose is ninety-nine and nine hundred ninety-nine thousandths percent pure; that is, it contains only such minute traces of any other substances that it can be considered as containing nothing else whatsoever, even in delicate chemical uses. It is, in effect, a new chemical raw material which can be used to produce a whole series of acids, a series of alcohols, a number of protein compounds and many other products which are of great interest to the chemical industries. Its applications will be strictly new business which will increase the use of corn by entering uses which have never before been served by a derivative of this agricultural crop.

Competitive Starch

There is just one more point that I want to mention on the position of corn as an industrial raw material. I have indicated that it is an industrial raw material solely because of its starch content. It is conceivable that in a world liberally endowed with many other sources of starch, there may be competing sources which can seriously restrict the utilization of corn. Actually, there is such a competitor at the present time — tapioca. It is in use in the textile, paper, chemical, adhesives and other industries. Due to its extremely low price, its utilization as a starch is already equal to more than one-third of our cornstarch consumption and is increasing at a rapid, if not alarming, rate.

If this competitor were barley, oats or some other domestic product, its rising use would not be greatly disturbing to agriculture, no matter how discomforting it might be to the corn refiners who established our starch markets. But tapioca comes from abroad, it cannot be grown here, and the loss of the starch market to a product grown in the tropics is a total loss to American agriculture.

Tapioca starch, with the lesser imports of its foreign brother, sago, is shipped into the United States free of duty. An all-time record of three hundred and six million pounds came in last year — the equivalent of an amount of starch that would require the processing of nearly nine million bushels of corn. I have just seen the January import records of the Department of Commerce and am concerned, though not surprised, to note that forty-five million pounds of tapioca and sago entered the United Sttaes in that month. This is at the rate of five hundred and forty million pounds a year if it continues through nineteen thirty-seven — the equivalent of roughly sixteen, instead of nine million bushels of corn.

I make no predictions as to what this means or what the economic and secondary effects may be. I simply think the situation should be closely watched and the way prepared to do something about it while there is yet time. Consumption of corn by this industry now amounts to about seventy-three million bushels. I leave it to your own judgment to estimate what this means to the national economy. While it is less than four percent of the total tremendous crop, it is forty percent of the cash corn that moves through the big terminal markets. It sems to me that the great bulk of the crop may actually be just so much hay that might be selling by the ton instead of the bushel if there were no demand beyond the farm uses.

Certainly, from a national point of view, it should be well worth the effort to try to hold the chemurgic use of corn at least up to its present levels and to give every reasonable encouragement toward its expansion. The corn refining industry feels that it is doing a good job and an important job. It will continue to do so as long as conditions permit.

Between the Elevator and the Mill*

By C. W. PARTRIDGE, Secretary, Association of Operative Millers, Kansas City, Mo.

The grain elevator superintendent would find himself quite at home in the cleaning department of a flour mill. He is familiar with most of the equipment, and especially in country mills and others located closer to the wheat fields than the Terminals, he would observe problems and processes closely paralleling his own.

In the mill, however, a new and most important problem is presented. It is not enough that the grain be thoroughly cleaned and scoured; it must be "tempered and conditioned" for milling process.'

The uninformed is liable to consider the conversion of wheat into flour as a very simple process. Originally perhaps it was. The grain was rather crudely cleaned, crudely ground and crudely bolted. Specky flour was of course the rule. That was before the day of "Science in the Mill," before the time of Cereal Chemistry and Production Control Departments, before the era of great wholesale bakeries with rigid standards, before the "discovery" of diastase and ash!

How early water was first used to help prepare the wheat for milling is not definitely known, but within the memories of millers still on the job today, certain wheats, desired now because it is known how they can be properly prepared, were then unacceptable. In European mills, grinding wide varieties of wheat from all around the world, elaborate "conditioning systems" are the rule. Within the past year there have been rumors of their improved washers whereas short-time tempering systems and experiments with vacuum type equipment have been given great attention recently by American mills. Progress has been indicated, and greater progress, it is believed, is just ahead.

Tempering

MR. E. D. Simon in a paper read at the convention of the National Association of British and Irish Millers in June, 1923, had this to say:

What objects has the miller in mind in tempering his wheat? It seems to me that there are two sets of objects, the first being to improve the process of milling, and the second to secure the right percentages of moisture in the finished products. Each of these two objects contains various sub-divisions. As regards improving the milling process, the proper tempering on the first break has four direct results:

1. To toughen the bran and so prevent bran powder being formed.
2. To secure the easiest separation of the bran from the endosperm.
3. To render easy the subsequent breaking down of the endosperm.
4. To get accurate and easy sifting on the dressing machines.

Four very important indirect results follow. The toughening of the bran and the easy separation from the endosperm lead to a better separation, cleaner break flours, and a better color in the flour right through the mill. This is undoubtedly the most important result of tempering.

The second result is a reduction of power required by the roller-mills, and this in its turn causes

The third result, which is less heating and, therefore, less loss of moisture by evaporation.

The fourth result of good conditioning is due to the fact that just as the wheat must be soft enough for easy grinding, so it must be hard enough for easy sifting. If any portion of the mixture is seriously damp, sifting becomes difficult, and the capacity of the mill immediately reduced or, to put it in another way, good conditioning means increased milling capacity.

Wheat Conditioning

"TEMPERING" in itself, however, is not the entire problem. Mr. Simon has given us a definition, worthy of careful consideration: **Wheat conditioning is the process of preparing wheat for the mill in such a way as to facilitate the best separation of the bran from the endosperm and, so far as possible, to improve the baking value of the resulting flour.**

Two quite different objects are covered; the first is to get the wheat on to the first break in a certain physical state; the second is to cause some chemical or biological change in the wheat berry which will improve the strength of the flour. The first is "tempering." The second is "conditioning for strength."

In "A Historical Study of Wheat Conditioning" (Pamphlet No. 11, Technical Education Series, published in July, 1934, by the National Joint Industrial Council for the Flour Milling Industry, in England), Mr. W. S. Thompson presents a highly illuminating description of conditioning equipment used in his country.

"It is undoubtedly necessary, for best milling results," he states in his conclusion, "to adjust the physical condition of wheat. The adjustment may require that the moisture of the wheat as received, shall be reduced, i. e., the wheat must be dried; but for the great majority of the wheat from overseas an addition of moisture is more suitable. Whether the moisture content of the wheat ready for milling is to be higher or lower than that before conditioning, the production of a correct physical state appears to be helped by raising the temperature of the wheat to around 100 degrees F. for a period, applying air currents and subsequently cooling the wheat. It is possible to get many kinds of wheat into excellent physical condition for good milling by suitable additions of cold water, followed by extended periods of storage before grinding, without the use of heat. But it appears certain that conditioning with the aid of heat, makes it possible to mill the wheat satisfactorily with substantially more moisture. The time necessary for conditioning is also very much less when heat is used than without its help."

American mills in the past year have developed a renewed interest in the question of "Conditioning," and marked improvement in methods of preparing wheat for milling are looked forward to in the next few years.

There is also renewed interest in problems and methods of "wheat washing," still believed not necessary in many sections where fine clean wheat is available, often direct from harvest fields. On this subject the following summary by J. G. Kehr, Russell-Miller Milling Co., Buffalo, N. Y. appears in the Bulletins of the Association of Operative Millers, for January 1937, Page 765:

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WHEAT WASHING AND ITS EFFECT

THE washing of wheat, always a good topic to discuss, though not a new development, gained considerable momentum during the years 1909 to 1912 as the wheat during this period of time was contaminated with a considerable amount of smutty wheat, especially in the northwest and western areas, and surveys were conducted to determine the advisability of



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BEN J. MANY COR

DECEMBER 1939



PORATION

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washing this wheat and determine the effect. I received and have in my files copies of two of these surveys conducted and known as the Neilson survey. The first survey was made at a Pacific Coast elevator handling approximately ten to twelve million bushels of wheat a year and 65 per cent of this was smutty wheat, and as a result a washer was installed, more or less as an experiment.

"The trade at that time was not any too willing to buy washed wheat. The common opinion seemed to prevail that if the wheat had been submerged in water it could not be used very well. They seemed to feel this wheat would develop musty flour. This of course was soon discredited and soon they became accustomed to using washed wheat and more washers had to be installed to fill the demand, so the cost of operation had to be determined. It was discovered that the cost of washing this wheat was as little as under one cent per bushel.

"The second survey was conducted in a mill in Illinois. Here the wheat was washed, using about five gallons of water per bushel. The cost of washing was very low, not a great deal more than a good scouring. The survey shows that washing wheat in this instance lowered the ash content in the flour from one to two and one-half points, and they were able to increase their patent percentage from 1 to 3 per cent. This alone was conclusive proof of the value of really washing and cleaning wheat thoroughly. Usually where wheat washing is discussed the loss and cost problems come up for considerable discussion, as naturally would be the case.

"In taking up the loss problem, we find that if the wheat has been properly cleaned before washing, the loss attained will be but minor and to check against loss by breakage is a matter of close attention to the washing equipment as to adjustment and care in the case of leakage due to breaks in washer or whizzer cases. A contrivance of some sort can be installed for all water to pass over and reclaim any wheat, etc., that might get by.

"The cost, as explained previously, is not prohibitive after equipment once is procured and installed, especially so when the results are of material aid and insure the miller of cleaner and much evener conditioned wheat for milling.

"The washing process or wet scouring process, as it is sometimes called, was probably first developed in England about fifty years ago. The English miller faced the problem of receiving grain from all parts of the world. In addition to being contaminated in the places of production, the conditions of transport often contributed their share of impurities to the grain. By referring to grain trade conditions in the eighties of the last century, we find England importing wheat from Russian ports on the Black Sea in holds of ships that had imported coal into Russia. Imagine the condition of such grain and we see the reason for the English engineer developing the first practical washing process.

"The American washers are more simple to operate than the elaborate English systems, such as the Robinson Washing and Drying Process, which has been widely adopted throughout Europe. Our first washers over here were of the revolving case type with combination whizzer. These machines were generally followed by column driers of sufficient capacity to reduce the washed wheat to desired moisture for tempering. About fifteen years ago the stationary case type of washer came into use and has since been largely adopted. In many installations driers have not been used. However, it is generally conceded that dirty, smutty wheat of fairly high moisture content can be successfully washed only through the use of driers following the washing operation.

"Millers in general agree that smutty wheat or wheat containing other contaminating bacteria and fungi can be used for milling purposes only through proper handling in a washing system. Whether or not it is necessary or worth the cost to wash wheat that is sound and fairly clean is a point on which millers differ in opinion.

Should All Wheat Be Washed?

WHEAT thoroughly dry cleaned and then washed is not only cleaner than when just dry cleaned but is more evenly tempered and in better condition for milling. To what extent this is reflected in the finished product or flour depends entirely upon the original condition of the wheat. Wheat contaminated by smut or other foreign material can, in most instances, be put in such condition by washing as to make very satisfactory flour, a condition impossible to attain by merely dry cleaning. Normally clean wheat when washed will naturally be some cleaner and more evenly tempered than if dry cleaned, but the improvement in the finished flour will be so slight as to be unnoticeable. Considering the additional cost of washing, it would not in most instances be advisable to wash all wheat even though there would be a slight resultant improvement. In unusual instances where considerable wheat is contaminated by smut, etc., a washer is almost a necessity."

"The costs of washing include water, some additional power and maintenance of the machine. Included in this cost is often mentioned the loss of screening escaping with the waste water. Where wheat is thoroughly dry cleaned before washing this loss is unnoticeable; in fact, the uniform penetration of the water into the endosperm due to the complete drenching of the wheat berry tends to increase the weight of the finished products to the extent that considerable of this loss is replaced.

"Theoretically, all wheat should be washed because the principle involved insures a more perfect result; practically, when grinding normally clean wheat the results do not warrant the additional cost."

* A summary of some of the recent bulletins of the Association of Operative Millers.

MERRY CHRISTMAS

and a

HAPPY NEW YEAR

TO EVERYONE!

and sincere thanks to all of our valued customers who placed so many Calumet Bucket orders with us during the past year.

We look forward to serving you throughout 1940.

B. I. WELLER

327 S. La Salle St.

Chicago, Ill.

Industrial Accident Reduction

THROUGH RESPONSIBILITY ACCEPTANCE

M. FRANK BEYER, Fort William

• Indicating the necessity of accepting Responsibility for Accident by Management, Supervisory Officers and Workers in the plant if any Worth-While Reduction in Accidents is to be obtained.

MOST good about us today, has come from dissatisfaction with conditions. Man came out of caves and built houses because they were not satisfied with the caves and because they felt they could have something better. Over a period of centuries, houses have improved in a way that are known to you all. The original tracks through the woods became roads wide enough for one cart, when the wheel was invented, and all know something of the magnificent highways that are in use in all parts in this continent. Those highways came into being because of dissatisfaction with the older type of roads.



Milk is delivered in the larger centers in a bottle, and in a growing number of places the milk has been pasteurized before being placed in a sterilized bottle. That was because the people were dissatisfied with the amount of disease traced to impure milk. The health departments in the various communities have been set up because the people were satisfied that something better could be achieved. And your police department exists because people were dissatisfied with the conditions that ante-dated the formation of this protective force.

Much Good Can Arise

MUCH of the good of the world has come from this dissatisfaction. Employers and workers have been dissatisfied with certain conditions in industry, and have set about improving those conditions. Workman's Compensation is the outgrowth of that dissatisfaction, and the Workman's Compensation Act in Ontario has been in operation from the beginning of 1915 so that in this Province there has been a full twenty years of experience with workmen's compensation, administered by a board, and operated as a state fund. The Provinces of Canada have had experiences of varying acts, Quebec being the last of the provinces to swing into line with the monopolistic state fund type of act.

It is only reasonable to assume that the Workman's Compensation must focus attention of industry generally on the need for protection and for accident prevention work of some type. Industrial managers were not satisfied that the cost should be transfered to industry without some reasonable form of protection, so accident prevention associations and similar organizations have been set up throughout the country and carried on largely by industry on behalf of the industry and of its workers. It is essential that accident prevention work, like advertising, should be a continuous campaign. Accident prevention is, and will continue to be, an operating problem in so far as industry is concerned, and the fact that in Ontario in the twenty-four years mentioned industry has found more than $115,000,000 for accidents that have happened, is an indication of the cost of that particular operating problem.

Safety Work Shows Profits

REGARDLESS of where the accident happens in industry, men will continue to be dissatisfied with the pension award that is made for, say, the loss of a hand on an unguarded saw, and employers should realize that accident prevention is the one relief they have from increasing compensation cost. There is a steadily rising trend in benefits awarded; industry finds that money, and it is cheaper and better to prevent an accident than to pay for it afterwards.

Accident prevention work in Canada and the United States is carried on through channels that have been accepted as worth-while, namely, through the distribution of educational literature, such as bulletins for shop posting, pay envelope inserts, calendars, etc. Through periodic inspection of plants and equipment by trained men and through the dissemination and general information regarding workmen's compensation and accident prevention.

In Nova Scotia, New Brunswick, Quebec and Ontario, the accident prevention association set up under the authority of the Workman's Compensation Act are supported by grants from the Workman's Compensation Board under the Act of that Province. In the main, these organizations are controlled by directors elected each year at their annual meeting. Those directors determine how far the campaign will be carried on, how much money will be spent and, generally, direct the work on behalf of industry and its workers.

With compensation acts such as are in effect in most of the provinces of Canada EACH CLASS of industry is practically a mutual insurance company, and it does matter to other industries in a class whether the cost of accident in any one plant is too high, because all are helping to bear the cost. It is expected, however, that the plan of differential rating adopted by the Workman's Compensation Board in Ontario will serve to focus attention more closely on the individual plant experience.

International Labor Office

THE International Labor Office was set up under the authority in part XIII of the treaty of peace, and is operating under the direction of H. B. Butler, BC, an Englishman of remarkable ability. That organization exists for the purpose of securing, by international action, adjustment of labor conditions throughout the world. The success of their work is reasonably apparent when one reads the list of draft conventions and recommendations that have been considered and approved.

A Toast

STOGES

May Christmas bring you good cheer and that the Brotherhood of Mankind be amplified in the New Year.

Sincerely,

E. H. Franke

President

THE STRONG-SCOTT MFG. CO. LTD.

WINNIPEG

Toronto Calgary



PROTECTION

or

EXPLOSION?

Try the Robertson Method of protection against the hazards of dust explosions

Robertson Safety Ventilators

Protect elevator legs from Dust Explosions, because:

They remove the more explosive fine dust from the leg by continuous gravity action.

They release pent-up gases and flames, in case of an explosion.

They minimize the possibility of a secondary explosion by continuously venting gases and dust.

Terminal elevators throughout the country are using Robertson Safety Ventilators.

Robertson Capacity Bin Ventilators

For balanced ventilation of grain storage bins.

Robertson Capacity Bin Ventilators are guaranteed not to give more than .0026 water gauge resistance and not less than 324% free area outlet vs. stack area.

Robertson Protected Metal

This corrugated steel roofing and siding material is protected from corrosion by asphaltic and asbestos coatings. Ideal for terminal buildings.

Write for information—no obligation.

H. H. ROBERTSON CO.
2000 GRANT BUILDING
PITTSBURGH, PA.

The I. L. O. consists of a number of divisions all taking instructions from the director. One branch of the organization is the research division, and this like others, is broken up into various groups, one of these being the safety service. The work of this group is under the direction of D. VAAGE, who has been on the staff for a number of years. He has a permanent force, and has, as his particular committee, the committee of accident prevention. The members of that committee have been approved by their various governments, and, this is a desirable feature, as it means that the members have a certin national standing. I can assure you that the members of the committee give their best thought, and considerable progress is being made.

Employers therefore are reasonably assured that, if the Safety Service sends on recommendations to the Governing Body, those recommendations have been thoroughly canvassed from a safety point of view. It was suggested at a meeting that the prevention of accidents, so far as industry was concerned, offered two sides, first safeguarding, and second, the human side, and that the problem must be approached from both sides; that is, first, the protection of machinery, the prohibition of the sale of unguarded machinery, the proper maintenance of plant equipment, etc., and second, selection, training and supervising of workers, by the management, and instruction in work processes, so that the work may be done in a safe way. It was further recommended that much can be done through research into mechanical processes, looking to certain standardizations and thorough Co-operation in departments, in industry, the countries and internationally.

Tragedy First, Not "Safety First"

EACH has a responsibility to learn from history, and a responsibility to prevent accident. There is the responsibility for the provision of guards by management, there is the responsibility for keeping the guards in place and proper condition by the supervisory officers of the plant, and there is the responsibility for the use of guards by the workers themselves. That responsibility is divided, but is not divided in such a way that any one of the three may shirk or transfer his responsibility to another.

The safety movements does not say that chances should not be taken, but suggests, however, that unnecessary chances should not be taken. Probably the safety movement today is suffering, in part, from the slogan; "SAFETY FIRST." Is it possible that "TRAGEDY FIRST" is the motto in some of the plants on this continent? It is too often that tragedy comes first before action in accident prevention work. It is notorious that unguarded punch presses, ungarded saws, ungarded belting and other failures to provide guards have resulted in serious injury or in death, but how often is it that a case must happen in a plant before the plant manager will see the light and take the necessary action, because the time to prevent accidents is before, not after, they happen.

Management Must See Problem

MANAGEMENT must accept a special responsibility for accident prevention. It is a problem of management, if for no other reason than the effect that accidents have on operating cost. When an injury does occur, let the accident investigation fix responsibility, and then take the necessary corrective measures, remembering again that the time to stop the accident is before it happens. Management must accept the responsibility for the labor turnover and production cost; management must accept responsibility for enlisting co-operation of all other ranks in accident prevention work, and management must accept the responsibility for providing safeguards for the workers in the plant.

If the extent of this responsibility is fully realized by the management, and all possible and practical means are taken to safeguard life and property from loss or damage through accident, this action must inevitably result in benefit to the management, through more efficent work on the part of its employees.

When these employees see that the management has their interest at heart as well as its own, by making an honest effort to reduce or eliminate the causes of lost time accidents, it cannot help but have a beneficial influence on the employees themselves and tend to make them more careful of their own safety and that of their fellow employees and the property of their employers.

Supervisory Responsibility

SUPERVISORS are given certain rights and certain responsibilities. They must improve co-operation between the workers and management in order that a worth-while product is turned out. They must assist in training both old and new employees in order that others may be prepared for promotion. Someone has said: "Success is a journey, not a destination. Happiness is to be found along the way, not at the end of the road; then the journey is over and it is too late." And so with plant supervisors; their responsibility is to be found along the way, not at the end of the road. Responsibility must be carried during the day for it is not something to be put on only in moments of stress and strain. If safety rules have been broken, if guards have not been used, if orders have been disobeyed, the responsibility for the accident rests, in part, on the supervisory force. It is possible that conscience may be eased by blaming the injured workman, but from a viewpoint of accident prevention it is futile. Accident investigation should disclose the whole combination of events that caused the injury and enable the necessary steps to be taken to correct the situation.

Individual Responsibility

AFTER the management and supervisory force have accepted responsibility for accident prevention work, and when working conditions have been reasonably good with safeguarding carried out, industry is then faced with the problem of getting the interest of the individual worker.

Responsibility is something no one can shirk. The worker in a plant has a responsibility for doing good work in a safe manner. He has a responsibility for using the safeguards provided and for keeping them in place, he has a responsibility for applying for first aid for any cut or scratch, no matter how small, and a responsibility to follow the plant's safety rules as part of his regular work.

Possibly, too, many have shrunk from duty or from responsibility, and possibly we on this continent must choose between accepting our responsibilities voluntarily or having them thrust upon us.

On the other hand, if responsibility in the matter of safety measures is shirked by the management, or an atmosphere of indifference permitted to prevail, this condition will, beyond all doubt, be reflected throughout the entire organization. The workmen will adopt, though perhaps unconsciously, the indifferent attitude shown by the management to the extent of even failing to make use of what safety measures may have been provided, and shirk their own responsibility by totally disregarding their own safety, until perhaps some unfortunate occurrence with disastrous results awakens all parties concerned and brings forcibly before them the responsibility they have neglected to exercise, jointly and individually.

GREATEST NEED TODAY

THE greatest need in industry today is the education of personnel men," believes Gilbert Lane, Superintendent of Arcady Farms Milling Company, in urging that industrial relations managers of all grain and processing plants be invited to join and attend local and annual SGES meetings. "Labor relations are of growing importance and none of us can learn too much about personnel work.

"And I'd like to add that I still think the Society's name is detrimental to the greatest possible growth and sphere of worthy accomplishment this group could make."

Dangerous Business

(These reports courtesy Lumbermen's Mutual Casualty Company)

In Kansas a laborer lost hold while descending a grain tank ladder and fell twenty feet, fracturing both feet.

A grain manager in a New York plant fell eighteen feet from a scaffold he had ascended to talk with the contractor. The accident ended in a fractured skull, cheekbone, jaw and nose.

Watch the Gears and Belts

AN unguarded drive-shaft was the direct cause of a plant employee losing his arm at the shoulder, when he let his hand slip into the gears while attempting to replace the belt.

The foreman in a Nebraska feed mill lost part of one finger and injured another when he attempted to clean the machinery while it was in motion.

In a Montana plant a belt slipped off and caught the watcher's leg causing a bad fracture.

An employee's glove was caught while he was soaping the belt and his arm was pulled through between the belt and pulley. The right shoulder and collar bone were fractured.

Attempting to replace a belt while the machine was in motion was fatal to an Indiana employee. He died from the injuries thus received.

A CORN sack was caught into the grinder in an Illinois plant and the operator lost three fingers when his hand was pulled along with the sack.

Reaching through the door to remove clogged corn, a Missouri corn miller lost his right arm at the elbow when it became caught and he could not loosen it.

While loading a hand truck in a Colorado plant, poorly stacked grain sacks fell on the employee and fractured the cervical vertebrae.

Failure of the motor in a truck belonging to a Missouri plant caused it to back down hill. In the attempt to jump to safety the driver fractured his left knee.

Internal injuries were sustained by the chief engineer in an Oklahoma plant when he fell from a ladder leading to the roof of the engine house.

★

PUBLIC TREND AGAINST COMPULSORY UNIONIZATION

An increase in public sentiment against the arbitrary forcing of workers to join unions was shown lately in the results of a nation-wide survey made public by NAM.

This was the second part of a series of questions in a poll made by the same organization which makes the highly accurate surveys for Fortune Magazine. The first part of the inquiry, which has already been made public, related to taxes, government spending and recovery problems.

In commenting the NAM stressed that the poll did not "represent public opposition to unions or the right of workers to organize, but does show public emphasis on voluntary membership rather than the tactics used to make membership compulsory."

The question propounded on compulsory unionization was: "Should every worker be forced to join a union?" These are the results as compared with the responses to the same question two years ago:

	1939	1937
NO	61%	57%
YES	20%	23%
SOMETIMES	11%	9%
DON'T KNOW	8%	11%

Plant Employees Against Compulsion

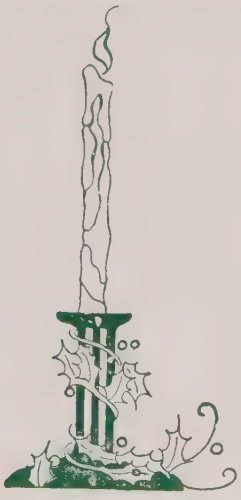
INTERESTING is the fact that a breakdown of the replies reveals that there has been a decided swing in the plant workers' opinion. It has been in the factory that the greatest high-pressure efforts at unionization have been made. Here is the way the workers answered the question of whether every employee should be forced to join the union:

	1939	1937
NO	50.7%	40.7%
YES	28.4%	42.9%
SOMETIMES	14.2%	9.3%
DON'T KNOW	6.7%	7.1%

Who Has Done The Most?

THE following are the results of the answer to the question: "Who has done the most for the country in the last 10 years?": Manufacturers 24%, industrialists 14%, merchants 11%, bankers 10%, labor leaders 9%, political men 7%, social reformers 6% and "Don't know" 32%. (Total aggregates over 100% because some persons cited more than one group.)

Commenting on these results, the Association said: "It is significant that the custodians of the private enterprise system, the manufacturers, industrialists, the merchants and the bankers gathered 59% of the entire vote, six times as many votes as the labor leader, over eight times as many as political men and ten times as many as social reformers."



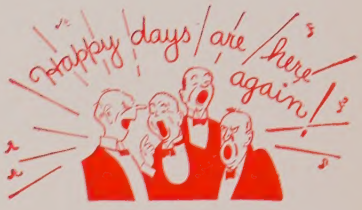
Peace

Be With You!

ZELENY THERMOMETER COMPANY

542 South Dearborn Street Chicago, Illinois





Your Christmas and the New Year will be happier if you know you've done everything for the safety and protection of your employees







Even if there were no legal responsibility there is a moral responsibility of providing the utmost in SAFETY.



May your coming year be "tops"



Yours for Good Will

POTTER MANUFACTURING CORP'N.

6120 No. California Ave.
Chicago, Illinois



DROP US A LINE

AND The savings in time in making an exit daily from the upper floors of the plant amounts to considerable year in and year out.

DEAD GERM WHEAT

WE understand that there is considerable wheat showing up with dead germs, states J. F. Moyer, Secretary of the Kansas Grain, Feed & Seed Dealers Association, Dodge City. Any grain grading "Sample Grade" is likely to be condemned and labeled "Unfit for Human Consumption" which would mean very heavy discounts with the price of feed grain so much under that of milling wheat. So, it behooves everyone to grade his wheat carefully when coming into the plant and to keep his storage stock in good condition by frequent turning.

★

ASSOCIATIONS VERSUS UNIONS

WHEN a laboring man pays these initiation fees and annual dues," asks the *Coal Digest,* "how can any business executive support the statement that his firm cannot afford the dues of his trade association?"

Compared with the ten dollars annual dues asked by trade associations, there is little need (and little breath left) for comment, writes Fred K. Sale, Secretary of the Indiana Grain Dealers Association, Indianapolis. It must indeed be a poor business that cannot afford to actively maintain its association membership in face of the excellent work being done for it by its trade body.

Regardless of the fact that the probable reason why so many are lax is that association effort seldom is of an immediately tangible disposition that instantly registers dollars and cents in the till, nevertheless it is a sad reflection on the plant executives of a business that have not learned what laboring men learned over a half century ago.

"This is the cost to a union man of his initiation and dues for membership in an organization to which he belongs (supposedly) for job security and the better chance to stay employed. (How much more the business executive stands to gain in the way of profitable information in return for just a fraction of these sums, is just as great a contrast.)"

Trade	Initiation Fee	Annual Dues
Painters' Union	$22.00	$38.00
Sheet Metal Workers	87.00	24.00
Railroad Brakemen	12.00	24.00
Steam Fitters	50.00	48.00
Printers	10.00	44.00
Teamsters and Truckers	5.00	24.00
Iron Workers	35.00	36.00
Elevator Mechanics	50.00	72.00
Railroad Conductors	Unknown	42.00

Convincing evidence, we'd say, that there ought to be a lot of new memberships taken out and delinquents reinstated in at least one prominent Society that we know about, woudn't you?

AUTO PLANTS USE VAST AMOUNTS OF FARM GOODS

IN the production of every million automobiles it is estimated that the agricultural products from half a million acres of farmland are used.

Listed below are some of the farm products used for cars and the purposes to which they are applied:

For every million cars:

Sixty-nine million pounds of cotton for tires and brake linings.

Five hundred thousand bushels of corn for alcohol and starch.

Three million two hundred thousand pounds of wool for upholstery, floor coverings, lubricants, and anti-rust preparations.

Two million pounds of turpentine for paints and adhesives.

Sixty-nine million pounds of rubber for the several hundred parts it forms in every car.

One hundred and twelve million feet of lumber for packing and numerous other purposes.

★

I'LL TAKE ONLY THE INTEREST

LARGELY as a result of safety measures practiced by the industry, fire and explosion losses in elevators have been reduced more than $8,000,000 during the past ten years.

★

WONTS AND WILLS

FROM L. C. Webster, secretary of the Northwest Country Elevator Association, comes a recent reminder of Kenneth Goode's summary on people, when he said:

People Wont —

—look far beyond their own interests.

—like change and newness.

—fight for things when they can find something to fight against.

—remember the past accurately.

—dare be different from the crowd unless these differences are recognized as superior virtues.

—exert themselves beyond the line of least resistance except under high emotion.

—act even in important matters unless followed up.

People Will —

—follow a habit until it hurts.

—accept beliefs ready-made and stick to them until the cows come home.

—follow leaders blindly and believe friends even though they know them.

—yield to suggestion when flattered.

—work hard to establish superiority in the eyes of other people.

—find greatest interest in their own emotional kicks.

—love low prices and at the same time dislike economy.

—glorify the past and discount the future.

Do you belong to your Association? If not why not join NOW?

Holiday Greetings To All

HALLET CAREY SWART LIMITED

Grain Merchants

WINNIPEG • MONTREAL
FORT WILLIAM
MINNEAPOLIS • DULUTH

IDEAL EMPLOYER-EMPLOYEE RELATIONSHIP

I HAVE been fortunate in that I have been associated in business with a group of men who make the comfort and security of their employees matters of first consideration. With this background the cordial relations existing throughout the organization naturally follow and if it works in one case it will work in others. Most men are fundamentally fair and fairness on the part of the employer will be met with fairness from the employee.

Let us hope that when this hideous nightmare is over we can resume, where we left off, the building of a happy and secure structure in which each and all may be privileged to make a contribution to the well being of the human family.—R. B. Pow, Reliance Grain Co., Ltd., Port Arthur, Ont.

★

200-300 ATTEND CHICAGO MEET

BETWEEN two and three hundred attended the December 6th meeting of the Chicago Chapter of the Superintendents' Society, held in the Board of Trade.

Dr. David J. Price, dust expert of Washington, D. C.. spoke on the findings in the Calumet Elevator explosion and showed his films. The Chicago Fire Department likewise presented their closeups of the conflagration. Much interesting discussion followed at the dinner meeting immediately following.

SIOUX CITY TO SHOW FILMS

WE plan to show the dust explosion films here soon.—H. L. Heinrikson, Terminal Grain Corporation, Sioux City, Iowa.

★

ANOTHER MILLION

GLIDDEN Company, Chicago, broke ground on December 4th for another million bushels storage.

★

SPECIAL HOTEL RATES

Toronto's Royal York Hotel, the finest and biggest in the British Empire, has proffered special room rates to the Elevator Superintendents' convention to be held there next April, according to a dispatch from Director Jim Shaw of the CPR's Port McNicoll elevator.



"I think if all the members became acquainted with this information now it might help in obtaining a larger attendance next year," Mr. Shaw believes. "Quite a few are of the opinion that the Royal York is too high priced for them, so consequently I believe this impression should be corrected at once—not that a dollar or two more is going to make anyone hesitate about attending, but rather for the good will that we want to create."

Manager J. Johnson states that single rooms are to be reduced to $3.50 and $4 a day for this occasion, twin bed rooms for two—$3 to $3.50 each, individual—bed room for three—$2.50 each. "We will be able to place only fifty single rooms at your disposal at the $3.50 per day figure," warns Mr. Johnson,—and those attending the Milwaukee convention without reservations were disappointed to find the minimum priced rooms all gone. "A word to the wise . . ." says Mr. Shaw, "is better than sleeping in the bush."

★

MARTIN SCHULTZ EXPIRES

MARTIN Schultz, long Superintendent of the Santa Fe Elevator in Chicago, died on November 21st.

CHICAGO TO HOLD JOINT MEETING

MARCH 5th has been the date set for a joint meeting with the "bosses," according to C. J. Alger, Corn Products Refining Company, Chicago, President of the Chapter. Mr. William H. MacDonald, Rosenbaum Brothers, will address the affair, among others.

The Chapter will hold a dance at the Redwoods in Riverdale on January 9th. On Saturday February 10th the group hopes to visit the plant of the Central Soya Company at Decatur, Indiana.

★

BOSSES MEET WITH THEM

THE Kansas City Chapter held a joint meeting with their "bosses" on December 12th, and from what we hear it was highly successful.

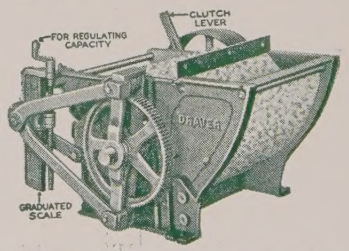
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ANOTHER EXPLOSION

HOUSTON, Texas, December 18. Damage totaling an estimated $50,000 to buildings and another $5,000 to grain in storage is reported as caused from a dust explosion here today in the plant of the Houston Milling Company. Radio accounts at first attributed the misfortune to the Municipal Elevator.

One workman was slightly injured.

DRAVER FEEDERS



Regulating the flow of grains to elevators and conveyors to assure maximum capacity without the danger of overloading is a profitable application of Draver Feeders. Costly chokes are avoided. Grain handling becomes more automatic. In groups or batteries Dravers form an efficient and accurate continuous feed mixing system. Complete information on request.

B. F. GUMP CO.

Established 1872
431 S. Clinton St. Chicago, Ill.

To You and Yours from the Entire Hart-Carter Organization



May Christmas bring you all the Joy and Good Cheer of the Season.
May the New Year bring Good Health, Good Fortune and Good Friends.

HART-CARTER COMPANY

Manufacturers of Grain Cleaning, Separating and Grading Equipment

706 Nineteenth Avenue N. E. Minneapolis, Minnesota